

Evaluating readmission rates due to gastrointestinal bleeds in post cardiac catheterization patients at an academic medical center



THE UNIVERSITY OF ARIZONA

College of Pharmacy

Sedona L Mann¹; Vincent Tsang¹; Julieta Vasquez¹; Georgina A Rubal-Peace^{1,2}, PharmD, BCPS
University of Arizona College of Pharmacy¹, Banner University Medical Center South²



Banner
University Medicine

INTRODUCTION

Background:

Dual antiplatelet therapy (DAPT) is commonly used post cardiac catheterization in patients after percutaneous coronary intervention (PCI). If patients also need to be on an anticoagulant, triple antithrombotic therapy increases risk for gastrointestinal bleeding. This can increase hospitalization rates. At Banner University Medical Center South (BUMCS), it had been recognized patients on dual or triple therapy post cardiac catheterization had been readmitted due to gastrointestinal bleed. Gastro-protective therapy had been linked to reduce gastrointestinal (GI) bleeding in high risk patients. The purpose of the project was to determine how many patients, post cardiac catheterization patients on dual/triple antithrombotic therapy, received concomitant gastro-protective therapy per ACCF/ACG/AHA guidelines.¹

IMPORTANCE

After completion of the project, BUMCS can implement a protocol to alert all physicians for patients discharged with dual/triple antithrombotic therapy who may need to be placed on a PPI/H2RA. The ultimate goal is to decrease readmission rates, due to gastrointestinal bleeding in post-PCI patients and improve patient outcomes.

MATERIALS AND METHODS

- A retrospective analysis of 230 patients were reviewed and an analysis was performed on a total of 148 patients who underwent cardiac catheterization. The electronic health record of the 148 patients were reviewed during January 2016 through December 2016.
- A data collection form created by the investigators was used to extract the data from patient charts. Patients discharged on dual/triple antithrombotic therapy were identified and included for assessment. The presence of concomitant gastro-protective therapy, antithrombotic regimen, demographics, risk factors, and 30-day readmission status were also collected and analyzed.
- The two comparison groups were patients on dual/triple antithrombotic therapy with concomitant PPI/H2RA therapy and patients on DAPT/triple antithrombotic therapy with no concomitant PPI/H2RA therapy.
- Patient charts were reviewed and collected by one investigator and to ensure that the data was collected correctly, another investigator reviewed the data collection.
- The statistical tests performed to compare the groups were independent t-test for mean age and chi square for all other comparisons. The p-value was set at 0.05.

DATA

Table 1: Baseline Characteristics				
		PPI/H2RA	No PPI/H2RA	p (α= 0.05)
		n = 42	n = 94	
Average Age (SD)		62 (SD +/- 12.8)	65 (SD +/- 12.2)	0.164
Gender	Male (60%)	34	55	0.502
	Female (40%)	19	39	
Race/Ethnicity	Caucasian	23	34	0.832
	Hispanic/Latino	27	53	
	American Indian/Alaska Native	1	3	
	Other	2	4	
Antithrombotic Therapy	Dual	47	86	0.582
	Triple	4	5	
Additional Risk Factors	History of Ulcer Bleeding	3	0	0.019
	History of Ulcer Disease	6	4	0.102
	Corticosteroid Use	2	4	0.888

Table 2: Gastrointestinal Associated Readmissions within 30 days post-cardiac catheterization			
	PPI/H2RA	No PPI/H2RA	p (α= 0.05)
Non-GI Bleed Associated	10	20	0.17
GI Bleed Associated	1	0	

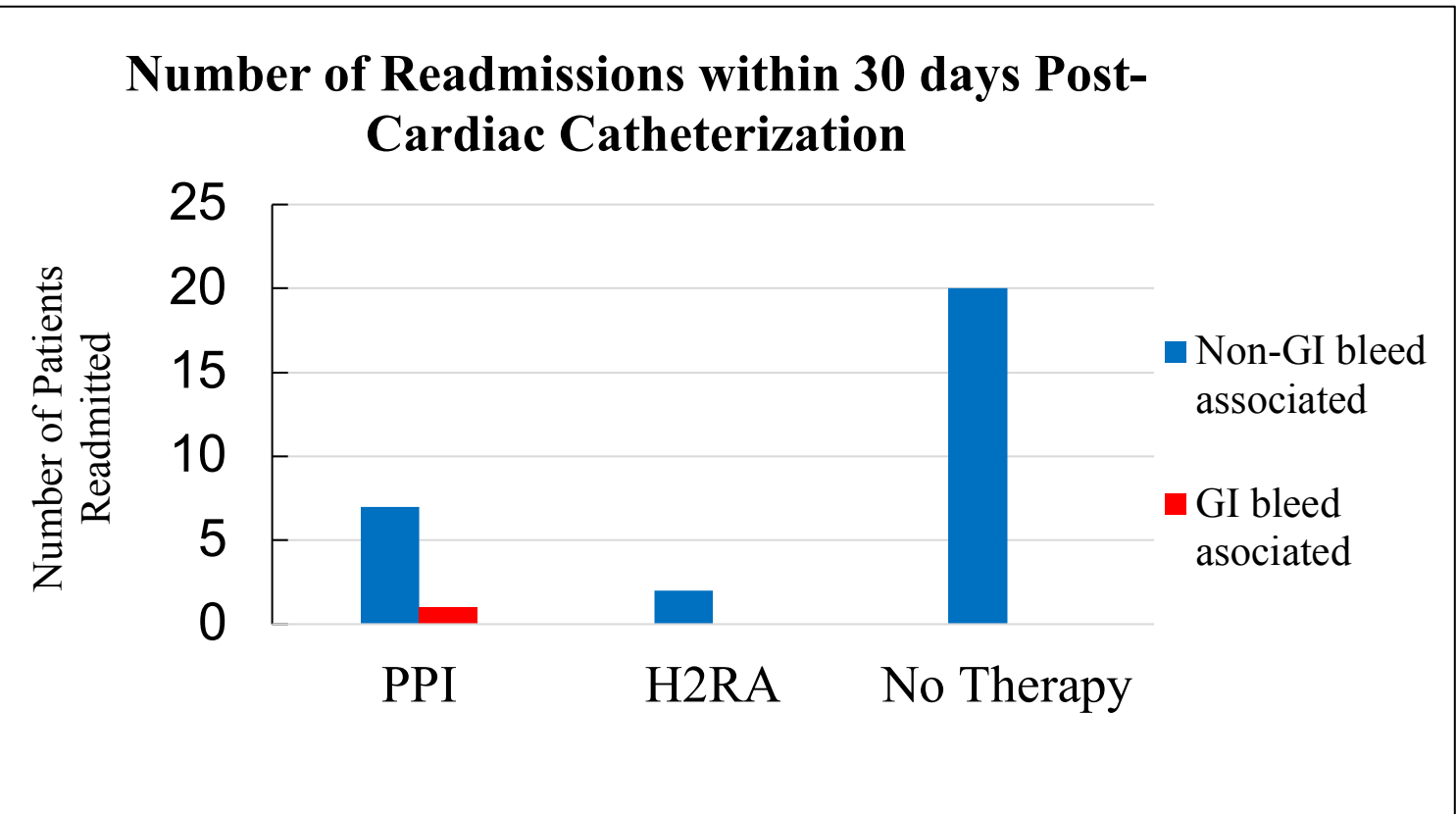


Table 3: General Readmissions within 30 days post-cardiac catheterization			
	PPI/H2RA	No PPI/H2RA	p (α= 0.05)
Readmitted	11	20	0.938
Not Readmitted	31	74	

RESULTS

- Patients that received dual antiplatelet therapy: 134
- Patients that received triple antithrombotic therapy: 12
- Patients that received neither treatment: 2
- There were no significant differences between those on gastro-protective therapy (n = 54, 36%) and those not on gastro-protective therapy (n = 94, 64%) with concomitant dual/triple antithrombotic therapy (p = 0.241).
- A total of 30 readmissions, 30 days within stent placement, were found.
- Among admissions, one patient was attributed to gastrointestinal bleeding. The patient was on gastro-protective therapy and readmitted 11 days after discharge.

DISCUSSION

The purpose of this project was to compare the rate of readmissions, due to gastrointestinal bleeding, among patients with and without gastro-protective therapy. One patient was readmitted with the primary outcome, gastrointestinal bleeding, within 30 days of cardiac catheterization. It was determined that concomitant gastro-protective therapy with dual/triple antithrombotic therapy had no effect on the rate of readmissions due to GI-bleeding 30 days post-cardiac catheterization at BUMCS.

CONCLUSION

Dual antiplatelet therapy is the standard of care for patients receiving percutaneous coronary interventions and has been shown to vastly reduce the cardiac risks in this patient population, however simultaneously increasing their risk for bleeding. In an effort to reduce overall risk, it is important to identify methods that can reduce the risk of adverse events in necessary drug regimens in these patients. The use of gastro-protective medications can also help with better compliance of the antithrombotic therapy as well as decrease the risk of recurrent cardiovascular events.² In previous studies, it has been shown the concomitant use of PPI/H2RA can reduce GI bleeding in post catheterization patients. However, this project did not have the same results and indicated that there was no significance of patients being on concomitant PPI/H2RA.

Limitations:

- Due to the narrow time frame of reviewing post-PCI readmissions only 30-days after discharge, only one GI bleed was found. If the 30-day review was extended, more bleeds might have been recorded. Extending chart reviews past 30-days, should be conducted to determine if there is higher rates of bleeds and readmission rates. There were other limitations that could be rectified to better analyze bleeds in patients on antithrombotic therapy.
- It is unknown if patients were readmitted to hospitals outside of BUMCS (including Banner University Medical Center Tucson) and thus, were not included.
 - Alcohol/drug use and Over-the-Counter products (like NSAIDs) were self-reported.
 - It was assumed that the participant's electronic health records contained accurate past medical history information.
 - The DAPT Score should have been used to assess bleed risk for those on DAPT therapy instead of the HAS-Bled Score.

REFERENCES

- Bhatt, DL, Scheiman, J, Abraham NS, et al. ACCF/ACG/AHA 2008 Expert consensus document on reducing the gastrointestinal risks of antiplatelet therapy and NSAID use. *American Journal of Gastroenterology*. 2008; 103:2890-2907.
- Jensen, B. E., Hansen, J. M., Larsen, K. S., Junker, A. B., Lassen, J. F., Jensen, S. E., & de Muckadell, O. B. S. (2017). Randomized clinical trial: the impact of gastrointestinal risk factor screening and prophylactic proton pump inhibitor therapy in patients receiving dual antiplatelet therapy. *European Journal of Gastroenterology & Hepatology*, 29(10), 1118-1125.

Authors

Sedona Mann, mann@pharmacy.arizona.edu; Nothing to disclose
Vincent Tsang, tsang@pharmacy.arizona.edu; Nothing to disclose
Julieta Vasquez, jvasquez@pharmacy.arizona.edu; Nothing to disclose
Georgina Rubal-Peace PharmD, BCPS, georgina.rubal-peace@bannerhealth.com; Pharmacy Program Coordinator, Pharmacy Residency Program Director at Banner-University Medical Center South